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THE
PSYCHOLOGICAL BULLETIN

CHILD PSYCHOLOGY[1]

A REVIEW OF THE LITERATURE, JANUARY 1, 1923, TO MARCH 31, 1928

BIRD T. BALDWIN[2]
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This review presents a summary of the significant investigations in child psychology during the past five years from the experimental and theoretical aspects; a majority of the references relate to experimental procedures.

A review of the literature on the subject for 1921 and 1922 was published in the BULLETIN in 1923 (19). Scientific interest in the psychology of the child as reflected through literature has grown rapidly with the differentiation into many specific fields and a marked change from questionnaire, observational, and group studies toward clinical, experimental, and personality studies. While the number of articles on mental tests has not diminished, there has been a marked growth in the number of experimental studies dealing with the psychological analysis of the test situations as well as increased emphasis on child behavior and mental hygiene. With the increase in the number of publications, it has become both desirable and necessary to limit this summary to strictly psychological studies instead of including psychoeducational and psychosociological investigations. A total of 539 references are cited; these include references to special bibliographies.

[1] In the preparation of this summary the writer has had valuable assistance from Dorothy E. Bradbury.

[2] This manuscript was prepared by Professor Bird T. Baldwin just before his untimely death on May 12th. It was then edited by members of his staff at the Iowa Child Welfare Research Station. (Ed.)

General Treatises

The important texts in the general field of child psychology, aside from those in the clinical field and those dealing with superior children and personality tests, that have made significant contributions to the knowledge of the psychology of the child are by Stern, Koffka, Johnson, Gesell, Fenton, Baldwin and Stecher, Ament, Wentworth, Bühler, Scharlieb, Pechstein and Jenkins, Murchison and Langer, Lincoln, Watson, Blanchard, and Arlitt.

Stern (441) analyzes the mental development of the child to the sixth year. Much of the material is based on actual observations of his own children. In addition to the aims, development, and methods of child psychology, he discusses the period of infancy before speech, speech development, memory, fantasy and play, creative activity, thought and intelligence, emotion, will, and the various forms and directions of endeavor. Koffka (272) applies without much experimental data the *Gestalt* theories to the developing mind of the child. The psychological methods, general facts and principles of mental and physical development, infant psychology, animal research, psychoeducational aspects of mind, and an interpretation of the world through the eyes of the child are topics treated.

The purpose of the investigation reported in Johnson's book (237) was to accumulate scientific data concerning the relation between mental and physical growth in children. The author's conclusions are: (1) Growth of the body and growth in mental ability proceed simultaneously, but the recognition of this relationship does not explain the influence of one on the other, and (2) different children grow at different rates and the limitations of growth of an individual child set by hereditary tendencies influence the rate of growth and therefore the stage of development of the child at a given chronological age. Gesell (159) makes his most important contribution in the study of mental growth to two years of age. The clinical approach is used in obtaining levels of mental development for the child of four, six, nine, twelve, and eighteen months as well as the child of two, three, four, and five years. Limited descriptions of subjects and methods of procedure are given.

A contribution in the special field of infant psychology is that by Fenton (125). As its title indicates, the book is in reality "a practical psychology of babyhood" based on the observation of a mother of her baby from birth to two years of age. The book is observational and biographical in its approach rather than experimental. It

is an account of the growth of the mind under the influence of environment and training. Baldwin and Stecher's (21) book is written for psychologists and persons with a scientific interest in the education of the child, being experimental in approach. The book deals with the child from two to six years. Tests of clinical value in the study of young children are given tentative norms. The authors not only studied the individual child but the child as an associate of children in the preschool laboratories of the Iowa Child Welfare Research Station.

Ament (6), in *The Mind of the Child,* traces mental development from the beginnings of fetal sensitivity to adolescence. The origins or reflexive and impulsive movements, the functioning of the various sense organs, the appearance of affection in the infant, the development of memory, the perception of time and space, thought, and emotions are among the phases of the mental development treated. Individual differences in intelligence and personality are marked even among little children, according to Wentworth (502). The necessity of a detailed personality study of every child is stressed, since emotional and environmental influences often affect the expression of intelligence even if they do not affect intelligence itself. Wrong habit reactions, formed early in childhood or in the first years of school life, are the basis of many neurotic symptoms and of much that passes for mental deficiency. Bühler (61) discusses the methods of child psychology, instinctive endowment of the newborn, beginning of purposive action, and the development of speech, thought, instinct, and intelligence.

A psychology of childhood intended primarily for parents has been written by Scharlieb (414). The sensorial development of the child, the acquisition of speech, and the growth of certain temperamental characteristics are dealt with in a simple manner. Pechstein and Jenkins (370) have issued a semitechnical educational text on the kindergarten-primary child. The book presents the broader aspects of kindergarten-primary education with the coördinated point of view considering learning, emotions, individual differences, educational and moral growth, and psychology as applied in the class room. A translation of Tiedemann's observations on the development of the mental faculties of children, first published in 1787, has been made by Murchison and Langer (348). According to Lincoln's (297) review of the literature, there are no significant sex differences in general intelligence, except for a somewhat greater tendency for boys

to achieve the upper range of group tests; records on an educational achievement test show higher achievement in school accomplishment for girls. In a handbook for mothers that deals with the psychological care of the infant and young child, Watson (**496**) discusses such problems as the control of fear, rage, temper, love, and sex. The child from the point of view of social psychology has been considered by Blanchard (**38**). She finds through the clinical approach that childhood is a period of socialization in which the child has to learn how to behave in various situations. The social adjustment of the child results from his contact with his family and schoolmates. The difficulties arising as a result of failures in socialization are treated clearly and simply.

Arlitt (**11**) in her *Psychology of Infancy and Early Childhood* gives a summary of the findings and practical applications of research workers in child psychology. She considers the physical and mental equipment of the child, the methods of controlling and disciplining the emotions, the importance of the environment in personality development, and the processes of conditioning and reconditioning in habit formation.

A number of books have appeared in various fields of general psychology which, although they do not deal directly with the child, offer data of significant value in the psychology of childhood. These are by Bentley, *The Field of Psychology;* Carr, *Psychology: A Study of Mental Activity;* Dunlap, *Social Psychology;* Freeman, *Mental Tests;* Gilliland and Jordan, *Educational Measurements and the Classroom Teacher;* Herrick, *Neurological Foundations of Animal Behavior;* Hollingworth, *Psychology: Its Facts and Principles* and *The Psychology of Thought;* Köhler, *The Mentality of Apes;* Langfeld, *Psychology and Education;* Lund, *Psychology: The Science of Mental Activity;* MacDougall, *Outlines of Abnormal Psychology;* Morgan and Gilliland, *An Introduction to Psychology;* Phillips, *An Elementary Psychology;* Ogden, *The Meaning of Psychology;* Pintner, *Intelligence Testing;* Poffenberger, *Applied Psychology: Its Principles and Methods;* Ruckmick, *The Mental Life;* Seashore, *Introduction to Psychology;* Spearman, *Nature of Intelligence and the Principles of Cognition* and *The Abilities of Man;* Thompson, *Instinct, Intelligence and Character;* Thorndike, *The Measurement of Intelligence;* Thurstone, *The Nature of Intelligence;* Washburne, *The Animal Mind;* Weld, *Psychology in Science: Its Problems and Points of View;* Watson, *Behaviorism;* and Yerkes, *Almost Human.*

Psychology of the Infant

Only one important monograph has appeared in the field of infant psychology. Bühler, Hetzer, and Tudor-Hart (**60**) studied the social reactions of children from four to twenty-four months of age. The method in the first part was to observe for ten minutes two babies, placed face to face in a play pen. The authors conclude that by the end of the first year the child is a socially oriented being. The babies were also exposed to loud and soft noises. After the third week the human voice proved to be the most effective stimulus. An inventory of behavior activities based on continuous twenty-four hour individual observations of sixty-nine children is reported.

Among periodical articles is one by Gesell (**160**) who points out that in infancy the significance of development during short intervals is comparatively great, that is, rate of growth within a given period is inversely proportional to the age of the individual. A two-month increment in infancy may approximate a two-year increment in childhood. The higher the developmental plane the slower the progress. In a report before the American Medical Association he has given a comparative method for the demonstration of normal development in infancy (**161**). A rather detailed genetic study of the development of an infant has been made by Brainard (**48**). Perez (**372**) reports a series of observations of infants. Koffka (**273**) discusses the mental development of the infant. Jones (**250**) has made systematic observations on 365 babies for the purpose of obtaining age norms and periods of development for certain early behavior patterns. Watson (**495**) reviews the equipment of the infant at birth. Lippman (**299**) studied experimentally the ability of 178 infants to accept one, two, and three objects. In addition he made notes on early reactions, purposeful shifting, crying, interest, attention, ability to hold the head erect, and handedness. Sherman (**426, 427**) has published two articles on the differentiation of emotional responses in infants as judged by adults. Johnson (**238**) studied the activities of forty subjects, aged eighteen to thirty-six months. She found that the skills ordinarily obtained by the age of two are: (1) maintenance of equilibrium, (2) locomotion, (3) manipulation, (4) postural changes, (5) expressive gestures, and (6) speech reactions. Sherman and Sherman (**425**) made a quantitative study of sensori-motor responses in ninety-six infants. All such responses were found to be imperfect at birth and to improve with age until a maximum is attained. Tayler-Jones (**461**) finds that most of the

special senses are used immediately after birth. An analytical study of stereotyped movements such as head hanging has been made by Clark (81). Piaget (387) presents a theoretical discussion of the first year of childhood illustrated with observations on the development of his daughter. Burnside (66) studied coördination in the locomotion of infants by means of motion pictures. A short diagnostic outline of the development of the child to one year of age is presented by Figurin and Denisova (128). Flayol (131) outlines the sensorial education and development of a small child. The resistances of young children and infants have been studied by Levy (291) and Levy and Tulchin (289, 292). Levy classifies the resistances of children into three groups, complete, partial, and no resistance. Male babies were resistant more often at about thirty months of age, female babies at about eighteen months. Levy and Tulchin found eight types of resistances in infants and children: simple crying, clinging to adult, pushing away toys, slapping at examiner, screaming and struggling, withdrawal reactions, passive resistance, and head shaking and talking. Resistances yield gradually to age.

The development of language during early childhood has always held an important place in genetic psychology. During the past five years significant monographs have appeared by Delacroix, Guillaume, Smith, and Piaget.

Delacroix (102) and Guillaume (199) consider the development of language in the child from the theoretical and experimental points of view. They agree that the child acquires speech through imitation. Delacroix finds that children who are neglected or receive little attention from their parents have a limited vocabulary and begin to talk much later than others. Guillaume points out the fact that the acquisition of language is a regular sequence.

An investigation of the development of the sentence and the extent of vocabulary in young children was made by Smith (435) from an analysis of individual records of all words used spontaneously by eighty-five children during one hour of free active play with other children. Smith also formulated and used a vocabulary test for children from two and a half to six years of age. The test secured the child's reaction by use of objects, pictures, and questions. As the test words were secured by sampling the Thorndike list it was possible to calculate the probable total vocabulary. The most significant changes in sentence development with age were found to be an increasing length of sentence, a greater frequency of complete sentences, and a decrease in the amount of repetition of identical

phrases. The average number of words in the vocabulary of 273 children increased from 0 at eight months to 2,562 at six years.

In a study of the relation between the language and thought of the child, Piaget (**381, 384**) made observations of the language of twenty-two children between the ages of three and eleven. The author presents a series of consecutive observations of the children of the various ages and concludes that the child's mind has two levels: the plane of subjectivity, which is the most important during the earlier years, and the higher plane of objectivity and logical ideas, which is the plane of reality of adulthood.

Terman and Lima (**464**) in their book, *Children's Reading,* have made an experimental study of the qualitative and quantitative aspects of children's reading, with special reference to age, sex, intellectual interests, and special interests. Data were obtained from three sources, the home, the school, and the children. Definite guiding principles in the formation of reading habits are formulated by the authors. Jordan (252) investigated the activities of children in reading as determined by the files of eight New York City libraries. In addition, 800 observations on what children were reading were also made. The author found sex and age differences.

The periodical articles that have appeared on the development of language have approached the subject from many different angles. Sorgnon (**438**) has studied the relation between the language and thought of the child. Sorgnon states that thinking and language develop simultaneously. Descoeudres (**104**) reports an attempt to discover the number of words in the vocabulary of children from two to seven years of age and the relative increase observed each year by means of her complete and partial language tests. She gives results for three children at two years nine months, 639 words; one child at five years, 1,950 words; and one child at seven years, 2,900 words. The evolution and development of the language of the child is outlined by Bühler (**62**). Bloch (**42**) studied the development of the sentence in the language of the child. Zyve (**539**), in an effort to determine topics of interest, has recorded the spontaneous conversation of third grade children. Nice (**352**) divides speech development into four stages, dependent on the sentence: single words, early sentences, short sentences of three or four words, and complete sentences of from six to eight words.

Nice (**353**) has summarized the findings in regard to the number of words in the vocabularies of children of various ages and nationalities. Horn (**220**) has determined the 1,003 words most frequently

used by kindergarten children from word lists sent in by kindergarten teachers as a part of the study of a committee on child study of the International Kindergarten Union. The author has also published a selected bibliography on children's vocabularies (221). Age and grade vocabulary norms based on a free association test are reported by Dolch (107). Naville and de Saussure (350) studied the paragraphs of children of eight and nine years of age. Pal (365) and Kenyeres (260) each studied the language development of an individual child; Kenyeres observed the appearance of various forms of words in a little Hungarian girl. The first words chiefly designated actions, things, and qualities. Boyd (47) made a detailed analysis of the sentences spoken by a child between the ages of two and seven. Guillaume (198) finds that the beginnings of the sentence appear at the age of sixteen months in connection with the names of persons.

Psychology of the Young Child

Baldwin and Stecher's (21) is the only text on experiments with young children, but there have been a number of significant monographs.

Wellman (497) has investigated motor coördination in young children. She studied intensively the child's ability to make movements in eight primary directions by means of a tracing path. Movements with the left hand were more difficult than movements with the right hand, this difference increasing with age. There was no apparent transfer of training from one direction to the other. Wide individual differences were found in types of combinations of body, arm, and hand movements. A study of the effectiveness of self-initiated activity in the use of play apparatus as training in motor coördination is reported by Wellman (499). Daily observations were made of the children's use of the play apparatus and four tests of motor coördination were given to three groups of preschool children at an interval of two months including a control group who did not have access to the apparatus. Wagoner (480) has analyzed constructive ability in making original designs and reconstructing designs by means of the arrangement of marbles on boards adapted to holding them in position. She finds that constructive ability as measured by this experiment appears not to be a function of intelligence but an independent variable. Stutsman (448) has given a tentative standardization of the performance tests for young children at the Merrill-Palmer school. The tests are described in terms of the materials

used, the method of administering, and the type of response which may be expected from children of different ages. The tests are fitting sixteen cubes into a box, nest of cubes, Wallin pegboards A and B, repetition of words and word groups, simple questions, buttoning buttons, three cube pyramid, Seguin form board, picture puzzles, little pink tower, manikin, and matching game. Kirkwood (**266**) has studied the association processes in young children's learning by presentation of twenty small wooden blocks of geometrical figures with twenty simple outline pictures that resemble the blocks. Kirkwood found that one perfect performance was inadequate as a criterion of learning but that when a child had given three perfect responses the material might be considered adequately learned. Presentation of the material on alternate days resulted in greater economy of learning than presentation on successive days. Relearning after an interval of a year was accomplished in fewer trials than initial learning. Meek (**333**) has observed the effects of certain selected factors on the learning of young children in connection with reading. These factors are varying amounts of initial practice, varying amounts of later practice, and similarity of associated words. Meek concluded that additional practice aided retention, but that a large number of recognitions at one time did not bring efficient results with the children studied. In no case was there total forgetting at any period. Smith's (**435**) investigation of the development of the sentence and the extent of vocabulary in young children is reported under growth of language. Marston (**321**) has measured objectively introversion and extroversion in young children. A rating scale and four test situations were devised. He discovered marked individual differences in introversion and extroversion at early ages. Three groups of children were differentiated, as shown by profiles: the introvert, the extrovert, and the ambivert. Goodenough (**181**) has recently published further data on the reliability of the Kuhlmann-Binet tests for children of preschool age. Four hundred ninety-five children from eighteen to fifty-four months of age were given at least one test. Approximately 300 were retested six weeks later; 100 were studied intensively. The I.Q.'s on the second test were distinctly higher. The Goodenough intelligence test (**174, 175**) utilizes only the child's drawing of a man. This test is based on the theory that the drawings made by young children are intellectual rather than esthetic and that manual skill and visual imagery are of less importance than development of concept in young children.

Because of the nonverbal character of the test, the author recommends it particularly for studying foreign and handicapped children.

Bayley (25) has assembled a scale of performance tests for three-, four-, and five-year-old children. Hallowell (202) has attempted to standardize a series of tests for preschool children. The following individual tests were given: three-disc form board, three-figure form board, Wallin peg boards, color cubes, audito-vocal digit span, and Stanford-Binet. Kingsbury (264) has devised a group intelligence scale for the primary grades. The individual tests consist of (1) following simple directions, (2) opposites, (3) associated objects, (4) right answers, (5) series completion, (6) analogies, (7) form, (8) tracing path, and (9) domino test. Cunningham (91) measured gross motor coördinations of infants and young children as distinct from general intelligence and general body development; Cramaussel (90) reports a series of experiments on simple, complex, and synthetic perceptions in young children. Lefevre-Lejeau (282) studied the ability of the young child to discriminate weights. *The Development of Number Concept in Children of Pre-school and Kindergarten Ages* is the title of an investigation by Douglass (111). Children of these ages have accurate concepts of one and two, fairly accurate concepts of three and four, and vague concepts of the other numbers up to ten. Margairaz and Piaget (320) and Krafft and Piaget (276) have attempted to determine to what extent children of from four to twelve years are able to reconstruct a story when they have been shown two pictures simultaneously, not in the right order, one of which represents the beginning, the other the end of the narrative. The younger children were unable to understand that the pictures formed part of the same story. Krasnopolskii (277) studied the development of work habits in children of preschool age. Goodenough (180) gave the Wallin peg board test to 100 children at three age levels, two, three, and four years, selected on the basis of a comparison of the distribution of paternal occupations within each age group. She stated that the boys did better than the girls; that children of different socio-economic levels did about equally well; and that the Kuhlmann and Wallin peg boards measure different functions. Pinter (393) has published new standards for the Pintner-Cunningham primary test based on the results of 29,533 children; correlations with Binet and other tests are relatively high. Bridges (50) discusses the weaknesses of the Kuhlmann-Binet, Stanford-Binet, and Gesell tests as mental tests for preschool children. Personality handicaps in the learning processes of young children

have been studied by Bird (31). Observations of 100 children between four and six years of age were made over a period of several months, with a view to the detection of personality hindrances in the learning processes. All the children possessed normal intelligence as measured by the Stanford-Binet and the Rhode Island intelligence tests. The learning situation used was the finger tracing of emery paper letters. About one-third of the children showed freedom from affective disturbances and made steady improvement. All the others were definitely retarded by some obvious personality handicap. A study of psychological methods as applied to preschool children is reported by Mitchell (343). Baldwin (22) discusses the methods of scientifically studying the preschool child.

In his book, *Mental Growth and Decline,* Hollingworth (215) considers certain general features of human development. He makes these assertions: (1) Development is both extrinsically and intrinsically determined. (2) Development is continuous. (3) Various aspects of development are found at different rates. (4) Development proceeds at the pace at which it starts. (5) Breaks in continuity of development are commonly due to extrinsic rather than intrinsic factors. (6) Correlation rather than compensation is the rule in development. The ten developmental stages named are: germ plasm, fetus, infant, babyhood, questioning age, "big injun" age, awkward age, maturity, senescence, post-mortem age.

Busemann (68) believes that children develop not according to a smooth upward curve of physical and mental growth but rather by an irregular course of favorable and unfavorable phases, which give the impression of periodicity. The critical phases or periods of excitation occur at ages three, nine, twelve or thirteen, sixteen or seventeen, and, perhaps, nineteen or twenty. Busemann advances a theory of physiological and psychological phase and counter phase in explanation of the development rhythm. The progress of development proceeds until a supernormal phase occurs in the emotional subjective sphere. Diagnosis of backward children has been made by Bonnis (43) through the adaptation of the Binet-Simon examination. All the children were examined several times at intervals of more than a year and a record was made of the mental level, backwardness, and I.Q. of each child. In this way curves for different levels were obtained that enabled Bonnis to establish categories of mental backwardness. He finds that mental progress grows less in proportion as the child completes his development; the greater the backwardness the earlier slowing up occurs. Gesell (164) lays down ten proposi-

tions concerning growth phenomena; he states that "in spite of its prodigious intricacy mental growth should lead to measurement and prediction." Growth, he believes, proceeds in orderly relation with chronological age from conception until death. The beginnings of an attempt to measure developmental age quantitatively by means of a rating scale and test are reported by Furfey (**143**) who defines developmental age as a child's personality reactions from birth to maturity. Penning (**371**) reports a method of deriving developmental age from a series of mental test scores.

The Psychology of the Adolescent

Stern (**442**) studied an adolescent boy's diary from the genetic point of view with special regard for the development of puberty. Pechstein and McGregor (**369**) have contributed a study of psychology and personality of children of junior high school age. In her book on the adolescent girl, Richmond (**405**) considers the meaning of puberty and the training of the adolescent girl. The book, written for parents and teachers, is in a nontechnical style. The language of the adolescent as used in fifty-two diaries was studied by Fuchs (**141**). Hart (**205**) gave the Army Alpha to 579 fifteen- and sixteen-year-old Iowa school children and concludes that mental growth slows up at fifteen. Pubescence, according to Viteles (**477**), is accompanied by a spurt in mental development in those who mature late as well as in those who mature early; the effect in the two groups seems to be equalized in adult life. Woolley (**528**), in an experimental study of employed children and school children, found that the group in school were superior in every trait at every age. Thorndike (**471**) after having given 3,000 pupils at the ages nine to sixteen years two tests (Educational research tests, Forms A and B) one year apart, found that there is a gain equivalent to ten months in mental age above the normal rate of development at about fourteen years. In a later article (**472**) he stated that if all the thirteen- and fourteen-year-old children considered in the previous article could be remeasured year after year until eighteen, their gains, with due allowance for practice, would be very little less in the last year than in the first. Collins (**85**) established norms for the Pressey cut-out test on British children of ages eleven to fifteen. Gaskill, Fenton, and Porter (**151**) tested the ability of adults to judge from photographs the intelligence of boys of ages eleven and twelve years whose I.Q.'s

ranged from 18 to 171. They found the judgments no better than chance.

Asher (14) gave fourteen-year-old boys in a reform school the Stanford-Binet, Meyers mental measure, and the Stenquist assembly tests of general mechanical ability. Meyers mental measure yielded higher I.Q.'s than the Stanford-Binet. In the Stenquist test, 65 per cent of the boys were above the median.

Kido (261) gave Japanese children of from three to fourteen years tests in discrimination, memory-association, and abstraction. Davey (96) gave 330 children of from four to fourteen years a verbal and pictorial test. He found that the child often selects attractive rather than correct pictures. Löpfe (300) gave the Rorschach form meaning experiments to ten boys at thirteen years in an effort to get reactions typical of children as differentiated from adults.

Constancy of the I.Q.

The problem of the constancy of the I.Q. has evoked a number of experimental studies. These in general may be separated into two groups, those in which the I.Q. was found to be constant and those in which records showed individual fluctuation. The most recent contributions to this topic are found in the Twenty-seventh Yearbook of the National Society for the Study of Education, Nature and Nurture, Part I: Their Influence upon Intelligence. Some of the data are new.

Gray and Marsden (188) have continued a previous study on the constancy of the I.Q. with 224 children who were given the Stanford-Binet examination from one to five times at year intervals. They find that the results of the annual retests show no marked median change in I.Q. In another study (187) they compare the results of from one to three retests on children in an industrial center and children in a rural district. They find that rural children show as much variation as city children and that the agreement between the second and third I.Q. is slightly better than between first and second.

Baldwin (118) reports additional data from consecutive Stanford-Binet tests confirming a previous study[3] demonstrating that for practical purposes the I.Q. remains sufficiently constant for a group

[3] Baldwin, Bird T., and Stecher, Lorle I. Mental Growth Curve of Normal and Superior Children Studied by Means of Consecutive Intelligence Examinations. *Univ. of Iowa Stud., Stud. in Child Welfare*, 1922, 2, No. 1. Pp. 61.

as a whole but that individual records show fluctuations that are smoothed out in obtaining general averages. Rugg (412) gave the Stanford-Binet examination twice to 114 children at ages five to fifteen. The first test correlated with the second test .948±.006. The average increase was 1.9 and the average decrease 1.2.

Slocombe (432), basing his study on Baldwin and Stecher's study of the mental growth curve,[3] believes that the I.Q. cannot be constant because of three factors entering into repeated tests: (1) the general intelligence which tests attempt to measure, (2) accidental errors or factors specific to each occasion of testing, and (3) factors which are common to a number of tests but not to all. He believes that conclusions drawn from comparisons of scores at different ages are invalidated by the fact that the same thing is not measured at each age. Slocombe has also studied the influence of practice on mental tests (431). He finds maximal efficiency reached at second testing and no decrease noted thereafter. Broom (57) tested and retested fifty high school students with the Terman group test of mental ability. The interval between tests ranged from six to twenty-three months. The maximal change in I.Q.'s was 13 points, the median about 5. The degree of change in the I.Q and the size of the interval between test and retest seemed not to be correlated. Randall (399) studied the constancy of the I.Q. by means of from one to five retests given to 152 grade children at intervals of from one to one and one-half years. Correlations between tests ranged from .699±.057 to .801±.100. The median shift in a negative direction was 6.5 and in a positive direction, 8.5. These shifts are attributed to external and uncontrollable factors. Hildreth (208), continuing the work of Rugg and Colloton, retested 441 school pupils of from three to seventeen years of age with the Stanford-Binet examination. The median change in I.Q. was .96, the coefficient of correlation .814. The author concluded that the fluctuation in I.Q. was due to such factors as the variable nature of children, practice effects, and variable environment. Doll (109) has pointed out the limitations of the I.Q., although he admits its educational significance.

Hallowell (202) gave from two to five Stanford-Binet tests to 142 preschool children. For diagnosis, children were classified as superior, above average, average, dull, doubtful, and feebleminded; 73 per cent classified in the same group on retest, 22 per cent in a higher group, and 5 per cent in a lower group.

Thirty children six years old were given by Lincoln (296) two Stanford-Binet examinations on the same day, one in the morning

and one in the afternoon. Lincoln obtained a reliability coefficient of .95. In spite of this reliability, it is a noticeable and significant fact that 10 per cent of the children varied 8 points in I.Q. within four hours. The investigator concludes that practice effects had not been taken care of by the authors. Downey (113) observed a visually preoccupied four-year old boy and found a rapid rise in I.Q. from 100 to 135 due to stimulation of the child and eidetic imagery; extraordinary proficiency in performance tests was also noted. Garrison and Robinson (145) gave the Stanford revision of the Binet-Simon examination to school children; they found that differences in I.Q. for one year interval ranged from +4 to —2; for a two year interval from +4 to —3, with an average gain of 1.7 points. Jones (251) endeavored to determine the effect of age and experience on certain component tests of some widely used intelligence examinations. After an experimental program his results show distinct differences between subtests. Experience, that is, living in the world, affected some tests a great deal. Minogue (342) investigated the constancy of the I.Q. of mental defectives; 72 per cent showed no real change in I.Q. There appears to be a tendency for males to vary more than females, and the variation is a loss more often than a gain. Madsen (317) reported results of testing sixteen Italian children, believed to have language handicaps; the I.Q.'s on their entering the first grade and the I.Q.'s a year and a half later showed slight but not significant changes. Matthew and Luckey (326) studied thirty-eight children whose retests on the Stanford-Binet showed a difference of 5 points or more. After classification of causes they found that in all but seven children there appeared to be some unusual factor in the make-up or conditions surrounding the test. Graves (186), Greene (190), Odell (355), and Casey, Davidson, and Harter (72) studied the effect of training in similar and identical material upon Stanford-Binet test scores. All found that training in Binet test material results in a gain in mental age score immediately after the training period. Practice in similar material resulted in a small rather insignificant gain; practice in identical material, in a larger gain; the resulting I.Q.'s gradually decreased with retests over a period of years.

Mental Tests

Verbal Tests. In a review of clinical psychology, from the medical and psychological aspects, criteria of development other than tests and the mental disease types, personality, and emotion are

described by Wallin (484). In a comprehensive treatise, Wells (500) deals with the measurement of individuals whose general behavior is more or less seriously maladjusted. The general examination methods, technics, and interpretations of the most common tests are reviewed with the emphasis on the clinical use of the tests. The evolution of the scientific problems involved in making, applying, and interpreting tests of mentality, including tests of intelligence, tests of special capacities, and nonintellectual or personality tests are discussed by Freeman (138), with emphasis on modern methods. Haller (201) outlines the principles involved in choosing tests used in the determination of mental age. Dearborn (100) discusses the theoretical aspects of intelligence and the significance, implications, and limitations of intelligence tests, both verbal and nonverbal. The relative values of marks and tests as forecasters of intellectual development, special intellectual abilities and disabilities, educational provisions for the various intellectual levels, the relation between intelligence and behavior, educational determinism, and social policy are other topics treated. Göpfert (183), in discussing the single tests of the Binet-Simon series in a brief monograph, concludes that it is impossible to find tests distinguishing between characteristics for definite ages, as a result of which normalcy for different age levels can not be determined. With Spearman's definition of intelligence as a guide, Strasheim (445) has developed three tests of intelligence, each consisting of a series of stories to be read to the testee. The first story of each set indicates a certain relation and the subsequent stories present problems of increasing difficulty. The tests are devised to measure the appreciation and ability to conceptualize and apply relations.

In a comparative study of the Stanford and Herring revisions of the Binet-Simon tests, Wilner (512) and Avery (16) find that the Stanford revision tends to give too high a rating to the child less than six years of age. A high correlation between the results of individual examinations with the Montessori materials and the Binet scale is claimed by Levy and Bartelme (293). Cushman (93) finds that Stanford-Binet and Herring tests are equally reliable with kindergarten and first grade children. He concludes from his data that little importance should be placed on mental scores at the extremes of the distribution.

McCaulley (310) studied the relative value of the auditovocal forward memory span and the reverse span as diagnostic tests. Memory span is dependent on age and mental development and

clearly differentiates retarded and normal children. The reverse span is more highly diagnostic than the forward span. Starr (440) concludes that the auditovocal digit memory span is of diagnostic value. In testing 1,016 school children Clark (80) did not obtain a correlation with general intelligence. Sherman (424) in testing 139 nine-year-old children found, with the exception of one backward child, the children able to repeat five digits.

Strachan (444) has given the distributions of I.Q.'s for 22,000 primary school children. They show higher medians for kindergarten children than for children in the first and second grades. A group test of intelligence for the primary grades has been devised by Kingsbury (264). Cunningham (92) investigated the earliest levels for young children of the C.A.V.D. test. This test "which aims at providing a complete scale for the measurement of ability in completions, arithmetic, vocabulary and directions" was standardized on inferior adults. Although the individual tests are not attractive to children, Cunningham finds that the evidence suggests that increments of difficulty on the basis of inferior adult performance are very similar for children of the same ranges of mentality. In giving adults the McCall multi-mental, a test designed for elementary school children and correlating the results with Army Alpha scores, Commins (87) obtained a correlation of .50. The author concludes that although the test may be a valid measure of intelligence at one level, it may not be for another. Doll (109) finds that, although the I.Q. has great educational significance, I.Q.'s obtained from different intelligence tests are statistically unequal and psychologically incomparable. Taylor (459) made an inventory of children of six and seven years' mental age by means of various mental tests.

Nonverbal Tests. Three manuals on nonverbal tests have appeared. Bronner, Healy, Lowe, and Shimberg (52) have published a comprehensive collection of material on individual mental tests. This manual includes all the material necessary to administer and score most of the adequately standardized tests, such as formboards, language and ideational, mechanical, and constructive ability tests. Kohs (275) made a psychological and statistical study based upon a block design test. He concludes that the block design tests are fair measures of intelligence. Squires' (439) manual presents a scale of individual performance tests that dispense with the use of language. The author has assembled tests for superior adults as well as for young children. The apparatus used is extensive and rather impractical.

Several periodical articles on nonverbal tests are available. The standardization of a color cube test is reported by Hutt (231). Fernberger (127), in an application of the Hutt color cube test to a group of children of subnormal mentality, obtained results similar to Hutt's standardization for normal children. The author concludes that mental age is an important factor inasmuch as mental age of eight years is necessary for successful performance. A series of tests and norms for the six-year-old child is reported by Easby-Grave (116). Young and Young (535) report data on the standardization of the Witmer form board. Arthur (12) has devised a new point performance scale for children between five and fifteen years of age. The tests used are (1) Knox cube, (2) Seguin form board, (3) two-figure form board, (4) casuist form board, (5) manikin, (6) feature profile, (7) mare and foal, (8) Healy picture completion, and (9) Kohs' block design. Tentative standards for the hollow square form board based on records obtained in clinical examinations are reported by Lincoln (298). Worthington (531) studied the relation between certain performance tests and intelligence as measured by the Stanford-Binet examination. Gaw (158), after testing 134 children with several tests from the Pintner-Paterson scale, U. S. army performance scale, and Porteus-maze test, concluded that performance tests measure some central mental capacity, largely intelligence, although in different terms than the Binet. No evidence that a nonverbal is a better test of intelligence than a verbal test is found by Davey (96). Shakow and Kent (422) describe and give norms for the Worcester form board series. The lower end of the scale, according to the authors, is not discriminative of high grade subjects or the upper end applicable to low grade subjects. Poull (397) points out the clinical value of the Rhode Island intelligence test and the Town picture game, in which language is reduced to a minimum, as offering an approach to the measurement of general intelligence of young children. A description of a simple clinical test, the design block test, is given by Maxfield (327). Blacking (33) has standardized a bead stringing test for children of from six to fifteen years of age; she believes that the test measures some motor ability, although experimental evidence to this effect is not presented.

A summary of the literature on intelligence tests has been prepared by Pintner (392).

Conditions Influencing Mental Growth

In a Harvard study, Wentworth (**502**) found a definite relationship between mental and anatomical development. Freeman and Carter (**137**) and Abernethy (**1**) have studied the relation between physiological development and mental development. Such items as dentition, the age of maturing, height, weight, and ossification ratio of carpal bones were used in the study of physiological development. The Stanford-Binet examination was used as a measure of mental development. The conclusion of the authors is that the children who are precocious in physiological development are not necessarily of high intelligence. According to Aoki (**9**), a correlation of the physical and mental development of fifty-three children of school age with the age of their first walking shows that early walking seems to predict early mental development. Perkins (**373**) finds as a result of a study of 555 public school children that chronological age is more closely related to dentition than is mental age. Hoefer and Hardy (**212**) aimed to determine the effect of improvement in physical condition on intelligence and educational achievement of a group of 343 American-born elementary school children of ages eight to thirteen. The children were given physical, psychological, anthropometric, and educational examinations; a slight tendency toward improvement in I.Q. and E.Q. was found following improvement in physical condition. Chassell (**78**) gives case studies of children of superior intelligence and inferior motor achievement. In a study of the relation between physical defects, the intelligence quotient, and quality of school work, Beggs' (**27**) data show that 74 per cent of the physical defectives have an I.Q. of from 60 to 80 and that 76 per cent of the physical defects appear in this group. Williams (**509**) finds a greater number of physical defects among mentally deficient children than among normal children. Gesell (**162, 166**) and Doe-Kulmann and Stone (**106**) have investigated the relationship between puberty precox and mental development. They found mental and sexual development relatively independent. In the children studied the rate of mental development tended to be normal or subnormal. Endemic goiter appears to have no influence on intelligence (**172**). No change in I.Q. after removal of tonsils and adenoids is reported in Lowe's (**301**) investigation. According to Smillie and Spencer (**433**), children with heavy hookworm infestation show a marked degree of mental retardation. In a study of the effect of glandular therapy on the I.Q., Fox (**135**) obtained

a positive correlation between the I.Q.'s of a group of children with glandular dysfunction and a group with normal function. Persons with pluriglandular disease make the greatest appreciable gain after glandular therapy; the gain of other patients is inappreciable. Wallin (483) reports that epileptic children are inferior mentally to normal children, as shown by mental age and pedagogical status. In the study of Fernald and Arlitt (126), forty-nine crippled children had an average I.Q. of 83, while eighty-nine siblings of these children had an average I.Q. of 89; the difference, the authors believe, may be explained in terms of restricted environment.

Jones (245) obtained a mid-parent and mid-child correlation of .69. Willoughby (510, 511) found correlations of mental test abilities between parent and child of approximately .40.

The influence of environment on mental growth has been the subject of many periodical articles. Kelley (256) advances definitions for nature and nurture which he believes make it possible to treat these factors quantitatively. The formulas derived are applied to a study of achievement of elementary school children, as measured by the Stanford achievement test.

A number of authors believe that environment influences mental growth in a positive way. In Theis' (465) study, 87 per cent of the foster children who had excellent care developed into capable adults while only 67 per cent of foster children who had poor care became capable adults. Freeman, Holzinger, and Blythe (139) report that children from unfavorable environments when placed in foster homes showed I.Q.'s practically the same as those of children in general with no background inadequacy.

Gates (156) and Gates and Taylor (155) studied the nature and limit of improvement due to training. Theoretical aspects of the problem are discussed. Thorndike (473) had a fairly high correlation, .60, for siblings on the alternate forms of the I.E.R. test, "a selection of tests from standard instruments—the Institute of Educational Research Tests of Selective and Rational Thinking, Generalization, and Organization." He reports, however, that the similarity of environment influenced the correlation of intelligence from .52 to .60. Willoughby has written two articles on family similarities evident in mental test abilities (510, 511). He makes a tentative suggestion that the effect of environment in determining these abilities is equal to or possibly a little less than inheritance. Arthur (13) found that younger siblings in immigrant families studied had significantly higher I.Q.'s than the elder siblings. In

a small group of children on whom test scores were available before and after adoption, Freeman (140) found a definite improvement in intelligence test score. The resemblance between true siblings placed in different homes is considerably less than for siblings who live in the same homes, whereas totally unrelated children in the same foster home show marked resemblances. Hoffmann (213) and Jones and Carr-Saunders (244) report a differentiation of intelligence according to social class; the children of the higher social classes receive on the average higher I.Q.'s. Gesell and Lord (165) conclude that children from better homes excel in greater spontaneity of speech and free use of constructive play material and possess greater friendliness, poise, and cheerfulness than less fortunate children. Fukuda (142) sees a distinct relationship between I.Q. and environmental score as determined by the Whittier home and neighborhood scales. A relation exists between occupational groups and I.Q., according to Stoke (443). Haggerty and Nash (200), Dexter (105), and Collins (84) conclude that children from the professional classes have higher I.Q.'s than those from the laboring class. Woolley (525, 526) tested two groups of young children; those who had attended nursery schools made a greater gain in I.Q. following this experience than those who had not attended nursery schools during the same period. Taylor (460) describes the actual environment of Boston children in relation to conduct and physical defects.

Other writers believe that their data show that environment has no influence on mental growth. Goodenough (182) and Hildreth (209) have studied the effects of the nursery school upon changes in the Stanford-Binet I.Q. Both obtained no real differences in I.Q. in the group who had not attended nursery school and the group who had attended for one year. Goodenough reports practically a zero correlation between gain in I.Q. and length of attendance.

Hildreth (207) found that siblings reared apart resembled each other as much as those reared together. Rogers, Durling, and McBride (410) obtained no appreciable alteration in I.Q. of orphans of school age upon change from poor to good environment although educational improvement was reported by their teachers. Teagarden (462), in a study of two subjects, found that the I.Q. remained relatively stable upon change from a poor to a good environment although improvement was made in moral, physical, and social make-up. Merriman (339) concludes from his data on the separation of twins reared in foster homes that environment makes

no significant difference in resemblance of twins. According to Jordan (253), the unfavorable influence of the home environment of mill workers' children is not sufficient to cause any measurable change in the I.Q. Goodenough (179) studied the relation of the intelligence of preschool children to the education of their parents. Low positive correlations were reported. She states that her data suggest that performance on the Kuhlmann-Binet test is more closely dependent on native endowment than on environmental factors.

In a study of 214 foster and 105 control children, Burks (64) concluded that (1) home environment contributed 17 per cent of I.Q. variance and parental intelligence 33 per cent; (2) the total contribution of inheritance is about 75 or 80 per cent; and (3) the maximal contribution to the I.Q. by the best home environment is about 20 points or less; the least cultured environment may depress as much as 20 points.

Individual Differences

A positive resemblance for all pairs of siblings was found by Hildreth (207). True siblings reared apart resembled each other as much as those reared together. Unrelated children raised together show no more resemblance than unrelated children not so raised. Freeman (140) found the resemblance between siblings placed in different homes considerably less than when they lived in the same home. Thorndike (473) finds a correlation of .60 between siblings on alternate forms of the I.E.R. test.

Cobb and Hollingworth (83), in studying a group of thirty-seven children who tested at or above 135 I.Q., found that the siblings of these children had an average I.Q. of 129. Pintner (391) found correlations between .24 and .42 for siblings. Hart (204) obtained an I.Q. correlation of approximately 0.40 between siblings on the Army Alpha, National, and Stanford-Binet intelligence tests. Commins (86), in a study of 142 pairs of siblings, found that in ninety-nine pairs the younger of the pair had the higher I.Q. and in forty-three pairs the older. May and Hartshorne (328) obtained results that, with environment constant, indicate a degree of similarity in deception of siblings as great as the similarity of mental accomplishment found by the intelligence tests in general use. Sutherland and Thomson (455) found a correlation of —.20 between size of family and intelligence. Lentz (288) reports that as the number of children in the family increase, the median I.Q. decreases.

A correlation of —.33 between I.Q. and size of family was obtained by Chapman and Wiggins (77).

Merriman (339) concludes that twins suffer no intellectual handicap; that environment makes no significant difference in the amount of twin resemblance; and that there are two types of twins, identical and nonidentical. According to Tallman (458), twins are about twice as much alike as siblings. Koch (270) studied a pair of Siamese twin girls about fourteen years of age and obtained many marked differences as well as similarities. The girls had Downey will temperament profiles that were strikingly similar, and in anthropometric measurements and mental tests the deviations of the pair from appropriate age norms was always in the same direction. Averill and Mueller (15) believe that twins, whether identical in appearance or not, on the average bear a closer resemblance to one another in physical and mental characteristics than any other two siblings and if there is identity in appearance the chances for similarity are greater.

Machacek and Tremel (314), in a study of only children, conclude that only children show extremes in character build but not in body build. Only children influence social groups in an unfavorable way.

Wentworth (502) has found no important sex differences upon administration of tests of general intelligence. In her study a few more boys than girls maintained high scores in successive tests. Goodenough (177) gives a brief summary of published work on sex differences and reports on her results of giving the Kuhlmann and Wallin peg boards to thirty preschool children; girls were superior on the Kuhlmann, boys superior on the Wallin peg boards. Winsor (517), from a review of the literature, decided that the sex differences in variability are negligible if a large enough population is tested.

Whipple (504) obtained a higher medium score for girls than for boys in giving 2,200 school children the National intelligence test. Paterson and Langlie (367) obtained a consistent sex difference in intelligence in favor of the boys among high school seniors and college freshmen. They conclude that sex differences in scholarship are largely pseudo-differences. The data of Book and Meadows (45) on approximately 6,000 high school seniors given ten separate tests, such as rote memory, logical selection of words, arithmetical abilities, opposites, logical memory, word completion, moral classification, dissected sentences, practical information, and

analogies, indicate that boys made higher total scores on all tests. In Fisher's (129) investigation, boys excelled in mechanical learning at the ages nine, ten, fourteen, and fifteen and girls at twelve, thirteen, and sixteen. In two articles by the staff of the Institute of Educational Research, Teachers College, Columbia University (233, 234), boys were reported more variable and excelling over the girls by about 5 points at ages thirteen and fifteen and 17 points at ages seventeen and eighteen; differential selection seems to be the potent cause of these sex differences. Pyle (398) finds girls superior to boys in learning capacity.

City children were superior to country children on the Stanford-Binet and vice versa on performance tests in Dashiell and Glenn's (95) investigation. Johnstone (239) and Gray and Marsden (187) report the results of applying the Stanford-Binet to rural children in a sparsely populated county in England. Johnstone obtained differences favoring the city child. While Gray and Marsden find country children very little if at all inferior to city children, Baldwin and Fillmore (23) report that rural infants show no noticeable difference in intelligence scores from city infants; rural preschool children show some inferiority at the upper ages; and rural school children show retardation that becomes increasingly apparent as they progress through school. Lehman (283) compared the play activities of town and country children. Country children showed the greater variability in play.

Although many clinics and a few laboratories are making studies of the mental deficient, comparatively few investigations of the psychology of mental deficients have appeared. In Wallin's book, *Clinical and Abnormal Psychology* (484), the author classifies and describes mental deficients from the viewpoint of the mentality, emotions, and development of personality. Bisch (32) presents a compilation of methods and data in regard to abnormal mechanisms and discusses their relative values. The normal and precocious child as well as the retarded child is treated.

No significant monographs on mental deficients have appeared. The periodical articles reviewed contain reports of studies of the feebleminded. According to Wallin (482), a large number of children in our school systems, although not feebleminded, are so backward in either intellectual or educational status as to require special instruction. Wallace (481) found that other factors beside limited intelligence were responsible for inability of the girls studied to adjust themselves to social requirements. McGeoch (312), in a study of the

fidelity of report of normal and subnormal children, finds intelligence positively related to report ability. A correlation of .75±.02 was obtained by Hegge (206) between memory and mental age. An inverse relation between suggestibility and intelligence in delinquents is reported by McGeoch (313). An application of the Marston introversion-extroversion rating scale has been made by Powers (395). She found that the mentally deficient girls rated slightly more introverted than Marston's younger, more socially promising group. The scale has a practical value in the study of mental deficients as it indicates the course of remedial treatment. Fatigue had no more influence on the performance of pupils with low intelligence ratings than on those with high ratings in Kefauver's (255) investigation. Retarded children, according to Merrill (337), tend to scatter over slightly wider range of age levels in the Binet tests than normal children. The child's environment must be considered an important contributing factor in any study of the adaption of retarded children, is the conclusion of Kinder and Rutherford (263) in an investigation of the social adaptation of sixty-three retarded children. Anderson (7) found that the median I.Q.'s of mental deficients show a tendency to constancy or only insignificant change. Beretta (29) found that the correlation between age and preferred associations is much higher in normal than in abnormal children. According to Castellano (73) greater intellectual deficiency in children is concurrent with unfavorable character and conduct traits. Schmitt (415) found twice as many boys as girls in the mental deficient group. The mental as well as educational retardation of delinquent boys is pointed out by Sullivan (450) as a probable cause of commitment to corrective schools. Otis (363) reports that the phenomenal memory of a defective boy apparently had greater effect on the Stanford-Binet score than on performance test scores. Murphy (349) has published a case study of a mentally deficient boy. Exceptional visual memory in a boy of below average intelligence is reported by Downey (112). Durea (115) presents a case study of a negro boy who received an I.Q. of 67 on the Stanford-Binet examination and an I.Q. of 140 on the Porteus maze.

An important contribution to the psychology of gifted children has been made by Terman, Baldwin, Bronson, and others (463), who conclude that children classified as gifted on the basis of a Stanford-Binet I.Q. of 130 or more are superior to the control groups in physical measurements and all intellectual traits studied;

they also show greater social, intellectual, and activity interests. Cox (89), in her study of eminent men selected by Cattell's objectively determined list, finds that they were above average in all desirable traits, they were more liable to extreme depression and anger, more eager for admiration, and less emotional than the average person. Ellis (119) has issued a new and slightly revised edition of his book, *British Genius*. According to it, great reproductive activity of parents and being the youngest or oldest child seem to be conditions highly favorable to genius. Hollingworth (217) has brought together the principle studies of the past decade on the development and education of gifted children. She shows that children with I.Q.'s of 165 differ markedly from those with I.Q.'s of 130. Brown (58) and Baker (17) interpret mental differences with special reference to teaching and analyze these differences in qualitative rather than quantitative terms. *The Twenty-Third Yearbook of the National Society for the Study of Education* contains discussions of the gifted child from the educational viewpoint.

Many articles on gifted children have appeared in periodicals in the last five years. The methods of selecting such children are outlined by Baldwin (20). Jones (242) has studied a group of superior children from four to fifteen years of age by means of a group of tests, Witmer cylinders, Witmer form board, Young slot maze A and C, Dearborn form board, vocabulary memory span, and educational tests. She found that the median mental age acceleration was five years. Jewish children predominated the gifted group. Richards-Nash (403) discusses from a theoretical standpoint what constitutes superiority. She finds two kinds of superior children, efficient, or normal, superior and subefficient superior. Richards-Nash also studied both mediocre and superior groups in terms of educational achievement. Efficiency, she designated the amount of work completed as compared with the I.Q., but considered the mental test not a safe index of school success. Doll (108) makes a plea for a clinical diagnosis of superior children as opposed to the mere classification of such children on the basis of intelligence tests. Simon (429) discusses superior children from both the psychological and educational viewpoints. The bright and dull children studied by Wilson (513, 514) learned mirror drawing and the Witmer cylinder test with equal facility. Children testing in the highest 1 per cent of human intellect, that above 135 I.Q. on the Stanford revision of the Binet-Simon examination, are superior in size and

strength of grip, according to Hollingworth and Taylor (**216**). Superiority of the gifted in tapping rate is reported by Hollingworth and Monahan (**219**). Intellectually gifted children excel children from the regular classes in grip in the hand and wrist tapping in Monahan and Hollingworth's investigation of neuromuscular capacity (**344**). In the standing broad jump, where body weight must be raised, the gifted are equal to, but do not surpass, their schoolmates. In this study, however, the gifted average 7 pounds heavier. Musical sensitivity within a group of intellectually gifted children Hollingworth (**218**) found to be more closely connected with chronological age than with mental age. Witty and Lehman (**520**) find gifted children equal to, but not excelling, the average in versatility of play interests. Pubescence occurs earlier in superior children according to Lutz (**304**). Rockwell (**409**) believes that a high I.Q. does not necessarily mean high creative productivity. Witty and Lehman (**519**) believe that drive largely determines the productivity of the gifted. Jones (**241**) and Waddle (**479**) present case studies of superior children. Hirt (**211**) reports a child with a high I.Q. who failed to make social adjustments. Kenworthy (**257**) discusses some emotional problems of the superior child.

Better performance on meaningless material by blind children and on meaningful material by children with sight was found by Bechtold (**26**), who studied the immediate retention of blind and seeing children. Worthington (**530**) attempted to find performance tests that would differentiate groups referred to a behavior clinic and a control group. Few differences better than chance differences were found by McHale (**315**), who tried to determine by experimental analysis if the psychology of the overweight child differs from that of the average or underweight child. The Pintner nonlanguage test given to deaf school children revealed the fact that deaf children made poorer scores than hearing children in spite of the fact that no language is required (**390**).

Racial Differences

In a review of work done in connection with the measurement of the intelligence of immigrants, Kirkpatrick (**265**) concludes that in general the newer immigrants, especially the Latins, have less intelligence than Americans and older immigrant stock. Boody (**44**) concludes from a psychological study of thirty-five children of ages three to seven and sixty children of ages eight to sixteen from various

stocks that racial differences are more apparent than real. Bere (28) made a study of ten-year-old boys of foreign parentage by means of the Stanford-Binet examination, Pintner-Paterson performance, National, and Pintner nonlanguage tests. On the Stanford-Binet, Pintner nonlanguage, and National tests the boys ranked Hebrew, Bohemian, and Italian; on the Pintner-Paterson, Bohemian, Italian, and Hebrew. Bere concludes that some relation exists between mental rating and social status. Hirsch (210) gave a group of 5,000 American-born school children of foreign parentage the Pintner-Cunningham primary mental test, the Dearborn mental test, or the Dearborn mental test A or C. The results show I.Q. averages for the different national groups in descending order: Polish Jews, Swedes, Englishmen, Russian Jews, Germans, Americans, Lithuanians, Irishmen, British Canadians, Russians, Poles, Greeks, Italians, French Canadians, negroes, and Portuguese. Differences in intelligence seem national or natio-racial rather than social. According to Pintner (389), American third and fourth grade children show less superiority over foreign pupils on the Pintner nonlanguage test than on the national intelligence test. Rigg (407) reviews some of the efforts that have been made to estimate the influence of social status and language handicap in the comparison of different nationalities. Feingold (124) and Mead (331) investigated the effect upon group intelligence test scores of linguistic disability in the homes of the children. All the children tested in Feingold's investigation apparently suffered from no linguistic disability while Mead reports a decided linguistic handicap. Walters (488) concludes that there is a language handicap in the Stanford-Binet examination of from six to eight months' mental age for foreign children of thirteen years. Leaming (281) finds personality differences rather than intellectual differences in her Irish-American group of school children. Feingold (124) tested American high school children of foreign parentage and obtained almost the same order as the Army results. Goodenough (176) tested American-born children of foreign parentage with the Goodenough intelligence test. Races ranked as follows: Jewish, Chinese, Scandinavian, Japanese, American, Italian, Southern negro. From a vocabulary study of children in a foreign industrial community in which the children were given the Stanford-Binet vocabulary test, Jones (243) concludes that the test does not give a true picture of the foreign child's mentality. In a study of

American, Mexican, and negro children, Koch and Simons (269) find the American child uniformly superior.

A great deal of psychological and anthropological interest in negro children has been evoked recently. Wells (501) applied the Goddard Revision of the Binet-Simon test to negro and white children. The white children made a better showing than the negro children. More white children were among the most advanced group and more negro children among the most retarded. Negro children of ages six, seven, and eight were equal to white children, but became increasingly inferior until age fourteen, when the climax of inferiority was reached. The author believes the differences to be due to social and environmental factors. Sunne (453) compared negro and white children by the Terman and Yerkes-Bridges revision of the Binet test. There were twice as many negro as white children of very low intelligence; at the upper end of the scale, the proportion of white children was much greater. The author also found a decided similarity in extent and variety of abilities. The point scale ranked the negro children higher than the Binet. Garth and Whatley (149) gave the National intelligence test to 1,300 negro children. The average I.Q. was 75. The data of Strachan (444) indicate that negro children are consistently lower than white children on the Terman revision of the Binet-Simon scale. In Sunne's (452) group the negro children, whose average was inferior to that of the whites, did better on nonverbal than on verbal tests. She believed this to be due to environmental factors. Peterson (376) and Peterson, Lanier, and Walker (377) made a comparison of white and negro children in certain ingenuity and speed tests. They conclude that white children are speedier at all ages although statistically unreliable differences were found at the twelve year age level. Peterson (375, 378) studied the comparative abilities of negro and white children in the rational learning tests. The white children were uniformly superior. Witty and Decker (518) made a comparative study of the educational attainment of negro and white children; the white children excelled the negro children at every age level. Hurlock (229) studied the color preference of white and negro children; she reports relatively slight differences. In a study of color preferences in white and negro three-year-olds, Arlitt and Buckner (10) found the major race difference in color preference to be more decided preferences on the part of negro children. Lehman and Witty (284), in their play questionnaire data, show that negro children between eight and fifteen

years of age engage in more social forms of play than white children. Young (538) studied the relation between intelligence and suggestibility in negro and white children. Negro children were less intelligent and more suggestible than white children. Sunne (454) gave a series of personality tests to white and negro adolescents. She concludes that the race differences brought out by the tests were not reliable because of the lack of standardization of the test material. The need of consecutive measurements of the same individuals is pointed out.

The Jewish child has been a subject of considerable experimentation. Davies and Hughes (97) made an investigation of the comparative intelligence and attainment of Jewish and non-Jewish school children; the Jewish children were definitely superior to the non-Jewish. Dearborn (99) gave physical, mental, and scholastic tests to 5,000 school children. Jewish children ranked higher in intelligence than American and Italian children and matured earlier, as shown by anatomical development. Seago and Koldin (418) made a comparative study of the mental capacity of sixth grade Jewish and Italian children; the Jewish children ranked considerably higher than the Italian. Graham (185) otained the same results in examining children in habit clinics; the Jewish children were also superior to American on both verbal and nonverbal tests.

The Italian, Mexican, Indian, Chinese, and Japanese child have all received considerable attention. In a study of 100 six-year-old Italian children in the United States, Serota (420) explains their lower mental test scores on the basis of language handicap. Italian children obtained scores equal to American children on the Detroit first grade tests in the investigation of Giardini and Root (167). When the test was given in Italian, the Italian children made no gain. The authors conclude that language difficulty does not play a prominent part in the rating of intelligence with this test. Pintner (389) obtained significant differences on the Pintner nonlanguage test between only two groups, the Anglo-Saxon and the Italian. The average Mexican child, according to Sheldon (423), is fourteen months below the average white child in mental development as measured by the Stanford-Binet and Cole-Vincent intelligence tests. Garth (146, 148) and Garth, Schuelke, and Abell (150) compared the intelligence scores obtained by means of the National intelligence test of Mexican and mixed and full blood Indian children; the intelligence quotient increased with percentage of white blood.

Fitzgerald and Ludeman (130) gave the National intelligence, Terman, and Otis group tests to eighty-three Indian children; the median I.Q. increased with the decrease in Indian blood. Paschal and Sullivan (366), in a study of the mental and physical development of Mexican children, conclude that a definite relationship exists between the proportion of Indian blood and mental status. Downey (114) obtained a lower percentage of left-handedness in Indians than in whites. Klineberg (268) obtained results indicating that whites are quicker and Indians more accurate. Graham's (184) data indicate that the Chinese child equals the American child in visual memory and is inferior in auditory memory and other types of problem solving. Hao (203) studied the memory-span of 600 Chinese school children in San Francisco and shows that the Chinese are better than white children on both visual and auditory memory for digits. Symonds (456) concludes that race superiority should be considered in terms of separate functions or groups of functions. Sandiford and Kerr (413) found Japanese children superior to Chinese in intelligence, whereas Darsie (94) found Japanese children inferior to American children in memory, abstract thinking, language and reading, and superior in concrete thinking. The lack of suitability of most of the standardized tests prompted the standardization of a general ability test by the University of Porto Rcio, in both the Spanish and English; it is reported by Walters (489). Smith (437) concludes that the inferiority of the oriental child is due to lack of opportunity.

Special Aspects of Development

Various aspects of space perception have been studied. Guillaume (196), interested in its genetic development, finds that space perception develops comparatively late in childhood. He explains this by the fact that space perception requires the use of other sensory abilities. He records observations on two children, two and five months of age respectively. Kuroda (278) studied the distance perception of a two-year-old child by placing candy at stipulated distances from the child, who chose the shortest route ten out of twelve trials. Boys estimate angles more accurately than girls, according to Barden (24). Fambri (122) had normal and abnormal children estimate the volume of space occupied by holes they punctured in the cardboard in a given time. The exactness of their esti-

mation was taken as an index of intuitive guessing which was found to be in inverse ratio to intellectual development.

The esthetic development of the child has attracted a group of investigators. Luquet (303) and McCarty (308) have studied the drawings of children. Luquet considers the elements of drawing and the evolution of children's drawings until they take on adult characteristics. McCarty made her investigation of drawing for an insight into children's interests by means of measuring children's achievements in drawing. Thiel (466) made a study of the drawing of deaf and dumb children. The author finds that progress in drawing parallels intellectual development in deaf as in normal children, but the rate of progress is slower; and that deaf children are superior in perception and presentation of detail. Goodenough (174, 175) has devised an intelligence test, using the child's drawing of a man. A color preference scale has been applied by Garth (147) to 1,000 white children. Blue is the most preferred color, green, red, violet, orange, yellow, and white ranking in order. Imada (232), in applying a color preference scale to Japanese school children, finds blue, red, green, yellow, violet, and orange to be the ranking colors. Environment and social status, according to Michaels (341), affect color preferences. A brief abstract of the literature on the development of color perception in the young child is given by Meier (334).

Révész (402) gives an account of a musical prodigy. Tilton (474) finds no clear evidence from his data on school children that there is any distinction between extent of association and efficiency of the higher mental processes. Osipova (360, 361, 362) and Dernova-Yarmolenko (103) studied the association reflexes of children of school age.

Piaget (382) discusses children's judgments and reasonings from the developmental aspects. He points out the connection between language and thought and language and logic, and deals with the development of ideas preceding actual reasoning. In the theoretical discussion as illustrated by short case studies of children he questions whether the child has a real world distinct from his imaginative play world (385). The clinical examination seemed to offer the best instrument for determining the answer to the question. From his work, Piaget concludes that the child is not a purely imaginative being but an organism that assimilates and molds his environment according to his own structure. In another article Piaget (383) makes the statement that the child is distinctly egocentric. In order

to understand the child's logic it is necessary to understand his ability to communicate with and conform to the thoughts of others. Logical activity and intellectual activity are not necessarily synonymous. In another article four stages in the child's explanation of shadows are given by Piaget (386): (1) the shadow as a substance, emanating from an object, resembling night in general; (2) the shadow as part of an object; (3) the shadow a substance fleeing from light; and (4) the correct explanation at about age nine or ten. A study of children's interests based on the observations of a mother is reported by Decroly (101). Wallon studied the various types and significance of children's questions during their development.

Koffka (271) gives an account of the new *Gestalt* theory in relation to child psychology.

Guillaume (197) gives as the early motive to imitation the desire to produce the same effects as a model. The actual movements to obtain the effect may differ from those of the model. Pure imitation comes quite late in the child's development.

An experimental psychological study of the rhythmical ability of children was made by Prager (396). Reimers (401) investigated the development of the feeling for tonality in the course of school life.

Huff (222) found enormous individual differences in the perceptions of school children. Gatti and Vacino (157) studied the consecutive imagery of children of from four to nine years. They advance the hypothesis that there is a transient stage in which the consecutive image is seen without color. Winch (516) studied the observation of school children, concluding that it is possible to train observation. Hull (225) studied the variability in the amounts of thirty-five different traits possessed by freshman high school pupils.

Oseretzky (359) has devised a motor ability scale for children from four to fifteen years of age; it shows that normal children and even those of above average intelligence often have striking motor deficiencies. A study of the acquisition of motor control in writing by preschool children is reported by Gates and Taylor (154). Borovikov (46) investigated the motor endowments of children with speech disturbances and children who were deafmutes. A study of the motor ability of delinquent children is reported by Aden (2); the Pintner-Paterson scale was used. McFarlane (311) studied the practical ability of a group of technical school children and a group of nontechnical school children by means of certain construction tests; these were performed more quickly by the group known to

have practical ability. Yarmolenko (544) finds that the average concentration reflex of preschool children is about thirty to forty minutes.

Child Behavior

Wile (508) believes that an intelligent approach to the problem of behavior difficulties in children calls for a study of the child in his social setting. Waring (490) studied the relation between early language habits and early habits of conduct control with a few children. The general assumption made is that language habits are related to habits of conduct control, leading to the hypothesis that conduct control is a development whose stages are attended by and intimately associated with definite language habits. The later stages of conduct control can be attained only by corresponding development of language. Behavior, according to Smith (436), rests on a biological foundation. It is characteristic of all organisms to maintain adaptive, integrative relations with the environment. The S-R formula is not sufficient to account for all behavior. The author suggests as more satisfactory the formula N-SR-C, in which N represents the need of the integration of the organism and the environment, SR the interdependent sensori-motor reaction essential to this need, and C the environmental change produced by the action. Some experimental work on children is also reported.

Eisler (118) attempted by a study of 100 children referred to the Minneapolis Child Guidance Clinic to find a direct relationship between physical condition and behavior. He found this possible in only four cases. Lowrey (302) points out that the child is experimenting with his whole environment, physical and dynamic, by use of varying modes of behavior, innate or acquired, to find situations in which the behavior meets with success. Wile (507) defines behavior as merely a form of conduct involving social living which has as its criteria not intellectual measures but social judgments, although intelligence is one of the elements involved. Beverly (30), Levy (290), and Adler (4) have summarized the various approaches to behavior disorders in children, such as the psychological, psychanalytical, and medical. Hohman (214) emphasizes the importance of the early years in habit formation. The patterns that persist throughout life are built upon a few simple responses which form the child's native equipment; what comes out of these elementary emotions depends on environment. Paynter (368) offers the opinion that the solution of the problems in temperament, personality, and

motivation will come from the combined efforts of the various schools and branches of psychology. Veverka (476) has listed the desirable behavior traits or skills for the four-year-old. Bridges (51) observed six boys and four girls three years of age during free play hour. He reports that the child's interest in any one task is of about eight minutes' duration. Blanton (39) has devised a behavior chart for recording the motives rather than the behavior of the child. The traits were selected by studying a large number of case histories. Meyer (340), Tudor-Hart (475), and Döring (110) have studied children's lies. Meyer believes that the causes of children's lies are fear, imagination, make-believe, mimicry, and weakness of will. Döring studied sixty children's statements and lies in order to analyze the causes and types of lies. Tudor-Hart reports that whereas the majority of American children state that they do not consider lies necessary in any situation, Vienna school children for the most part state that they are necessary in some situations.

Riddle (406) lists eight types of stealing that, when arranged according to mental age, show a serial order according to the amount of planning necessary.

An analytical study of 100 nonconformed adolescent boys has been made by McCaulley (309), who presents a series of psychological tests and case studies of the subjects. In Brooke's (56) study of ninety-one girls in state institutions, marked pedagogical retardation rather than mental retardation was the most outstanding characteristic. In a study of twenty-three families receiving aid from a charitable organization, Blanchard (37) reports that feeblemindedness and serious conduct disorders were of comparatively low incidence. A case of maladjustment to the social environment, notwithstanding a high I.Q., is reported by Hirt (211).

Lehman and Witty have issued a series of articles and one book on play, based on a questionnaire.

Personality

The increased number of investigations of the development of personality in children is one of the most noticeable tendencies in child psychology during the past five years.

Three books dealing with the theoretical discussion of personality are Roback's *The Psychology of Character*, Gordon's *Personality*, and Child's *Psychological Foundations of Behavior*.

Two books that make a direct approach to the study of person-

ality are by Groves (193) and by Martin (322). Groves is interested in personality and social adjustments of the child. He discusses the social significance of emotions, conflicts, fears, anger, sex, gregariousness, self-assertion, habit, and family life. In an attempt to determine the factors in character formation Martin deals with the various aspects of morality and the fundamental differences between the mind of the child and the mind of the adult.

Several significant monographs concerned with various aspects of the child's personality have appeared. An investigation of the emotional life of the child as compared with that of the adult is reported by Eng (121). Similar changes upon similar stimuli in children and adults indicate that the vasomotor changes are the same in both. Eng concludes that the emotion is primary and respiratory changes are secondary. Andrus (8) has made an inventory of the habits of children from two to four years of age that divides them into emotional, mental, motor, and social-moral. A study of parent-child relationships, both by ratings and experimental situations, is reported by Laws (280). Schwesinger (416), as a result of her investigation of the significance of children's social-ethical vocabularies, concludes that although language and intelligence cannot be considered indexes of actual conduct of the individual, group averages of such vocabularies and intelligence scores vary with the kind of deportment that characterizes the group. Marston's (321) study of introversion and extroversion has been mentioned previously.

Many periodical articles have dealt with the theoretical and experimental work on the personality of the child. Young (536) gives a theoretical discussion of the integration of personality. The integrated personality is one that is organized around some specific aspects of environment. For example, a baby's wishes are elemental only, and normally rather completely fulfilled. Gradually with the development of imagination and language, his sense of self and individuality becomes complex. Experiments conducted by Watson (493) on the growth of emotions have led him to conclude that the emotional life, like sets of habits, grows and develops from the few native responses present at birth. By means of the Pressey X-O test, Form B, Chambers (75) has developed a differential unit to serve as a measure of emotional maturity from grade to grade.

As a result of an investigation into the development of the moral conceptions of children, Macaulay and Watkins (306) show that the moral outlook of the child differs very little from that of the adult

with the exception of sexual crimes. Macaulay (305) investigated some social, age, and sex differences shown in children's choice of ideals obtained in answer to the question of whom they would most like to resemble. Their replies indicate that children have four main desires: (1) adventure, (2) personal achievement, (3) position and wealth, and (4) doing good. In a test of the social attitudes of children in the government schools of Russia, Davis (98) finds that they rank the peasant first and the banker and priest last, whereas American children rank the banker first and the ditch digger last. Hurlock (230) concludes that self-rating scales are of little value in the study of children. The developmental nature of social concepts and their relation to language is the subject of two investigations conducted by Meltzer (335, 336). The author obtains a correlation of only .40 between knowledge and talkativeness about social concepts. Both knowledge and talkativeness increase with age. A free expression test for measuring children's social concepts has been devised by Shaffer (421). Maher (318) studied the moral and social development of six-year-old children by means of the case study method. Children's ability to make an adequate interpretation of the facial expressions of others is the subject of an investigation by Gates (152, 153). Studencki (447) studied children's relations to themselves by means of leading questions. Chevaleva-Janovskaja (79) found that among preschool children boys formed groups spontaneously oftener than girls, and in 40 per cent of the groups the members were within a year of the same chronological age; the groups lasted, however, only from ten to thirty minutes. A leader initiated the group in more than half the cases; 54 per cent of the time a boy was leader of the group. Caldwell and Wellman (69), in their study of school leaders, find scholarship high, extroversion marked, and chronological age average for their group. Boys tend to choose companions of the same age, size, and intelligence as themselves, is the conclusion of Warner (491) and of Furfey (144). According to Wellman (498), pairs of girls who are close companions are more alike in scholarship than any other characteristic and less alike in height; boys are more alike in height and chronological age. Frederick (136) has investigated the social attitudes of high school pupils. Gilliland and Burke (168) report an attempt to measure sociability.

Chambers (74), in a study of dishonesty among the students of a parochial secondary school, concludes that a large percentage of high

school students cheat if given the opportunity. Construction of a scale for measuring dishonesty is reported by May and Hartshorne (328). Opportunities for cheating are given on such items as disarranged sentences, reading, spelling, arithmetic, and language completions. Cheating correlated with I.Q. —.40. Woodrow and Bemmels (523) applied an overstatement test to preschool children by asking the children if they could perform certain tasks and then having them actually try to. Fifty gifted and fifty average children were given an overstatement test by Witty and Lehman (521), who found that the gifted children showed less tendency to overstate their abilities than average children. The effect of incentives on performance has been studied by Hurlock (226, 227), Ross (411), and Sullivan (451). Hurlock concludes that children do better after either praise or reproof than after mere repetition. According to Ross (411), the influence of motivation is greater for brighter children. Persistence, success, and speed in a mental test have been studied by Chapman (76), who reports that, while the more rapid pupils achieve the greater success, their margin of success is less than it would otherwise be, due to their lack of persistence. The caution factor, as shown by Brown's results (59), is important in intelligence test performance. The wrong answers made in an intelligence examination were taken as indicative of either the presence or absence of caution. Sullivan (451) finds that in general the time required to learn a memory series is increased by the knowledge of failure and decreased by the knowledge of success in a previous performance. Pfahler's (379) group of school children were asked to write down everything they witnessed in a quarrel between two boys and later to answer a series of questions; suggestion decreased with age. *Aussage* tests were given to school children by Otis (364) in her investigation of the suggestibility of children; her data are evidence for the assumption that there is a measurable trait that can be called ability to resist suggestion.

Wyman (533) finds increase in intellectual interest with age, a slight increase in social interest, no increase in activity interest. Hurlock (228) attempted to make an application of the Downey will-temperament test to children in the seventh and eighth grades, but concludes that it is not well suited to children of that age. Köhler (274) made a study of the general mental status and processes of the three-year-old child, based upon original observations. A "scale of promise" has been devised by Burks (63) and applied to gifted

children, whose mean standing was somewhat higher than that of the average group. Hughes (223) has devised a rating scale for the purpose of measuring individual attitudes, capacities, and interests, such as quickness of thought, memory, leadership, initiative, aggressiveness, and self-confidence. A study of personality by means of a picture preference test is reported by Woodrow (522). Blanchard (36) studied the effect of family situation on the development of personality. In a study of the effect of certain family relationships on personality by means of a rating scale, Goodenough and Leahy (178) grouped the children into oldest, middle, youngest, and only children. The oldest children showed lack of self-confidence, aggressiveness, and leadership. Only children showed the reverse of these traits. Foster (133) demonstrates the possible disrupting influence of the home by means of case studies. Ishimaru (235) shows that good nutrition is positively correlated with good personality. Hughes (224) obtains low but positive correlations between personality ratings and I.Q.'s. The importance of early emotions and reactions to mature character are stressed by Judd (254). Regensburg (400) gives the sources of emotional maladjustments in supernormal children. A personality study of five persons, including one child with an analysis of the outstanding trait "contrariness," is reported by Bridges (49). The technic of building likes and dislikes in two boys of age two and four by means of a conditioned response is given by Moss (347). The early conditioning of personality is discussed by Taft (457). In a study of the personality make-up of fifty jealous children, Foster (134) concludes that the jealous preschool child is most often a girl between three and four years of age. Smith (434) found as a result of his study that the egocentric child has as a rule difficulty in adjusting to a group. Case studies of children are reported by Woolley (524, 529), Stutsman (449), Brooke (53, 54, 55), Nice (351), Macaulay (307), Wimenitz (515), Green (189), Jarden (236), and Leland (286, 287). Bibliographies on personality tests have been compiled by Roback (408), May, Hartshorne, and Welty (329), Manson (319), and Watson (492). A bibliography of the concepts of traits and personality has been published by Allport (5). Shuttleworth (428) has published an extensive bibliography on the social relations of children. Young (537) summarizes the field of social psychology. A summary of the experimental literature on originality has been compiled by Cleeton (82).

Mental Hygiene

A number of books both practical and theoretical in treatment have appeared on mental hygiene. Burnham, in *The Normal Mind* (65), brings together the contributions of physiology, psychiatry, psychology, and psychanalysis to the study of mental health. Integration of the personality is the essential characterization of the normal mind. A condition of mental health means adjustment. From the point of view of mental hygiene, the maximum of freedom is necessary for the child. The child must make adjustments and to do this he must have freedom. Habits, inhibitions, and the conditioned reflex are also discussed. The purpose of the book of Martin and de Gruchy (323) is to call attention to the importance of mental hygiene for the preschool age. The authors discuss a wide range of topics, including heredity and environment, interaction of the mental and physical, habit making, emotional development and control, incentives, the subconscious, and various types of behavior. Morgan (345) attempts to give the teacher an understanding of some of the most fundamental mental principles underlying behavior. Mateer (324) places emphasis on the qualitative as well as on the quantitative aspects of intelligence. Practices in clinical psychology, the constitutional psychopath, and the delinquent child are other topics treated by the author. Case studies are used as illustrations. Foster and Anderson (132) present and discuss 100 case histories of children ranging from two to seven years. The genesis of love in children is discussed by Pfister (380). Childhood extends from birth throughout adolescence. The author defines love as a feeling of attraction and a sense of self-surrender arising from a need and directed toward an object that offers hope of gratification. Such subjects as normal and abnormal development of love in children, formative forces and experiences, and the training of love in children are treated. Wallon (486) has made a psychological analysis of the unstable child.

The most significant books presenting a practical treatment of the subject of mental hygiene for parents are by Mateer (324), Groves and Groves (194), Wile (506), Walsh and Foote (487), Morton (346), Cameron (70), Pierce (388), Gruenberg (195), Wickes (505), Wexberg (503), Thom (469), Seham and Seham (419), La Rue (279), Kimmins (262), Blanton and Blanton (40), and Thom (470).

Much periodical literature on the mental hygiene of childhood has

been published. Blatz and Bott (41) discuss the methods of mental hygiene. Adler (3) states that every person, including children, has a goal of superiority. Strecker (446) outlines the qualities that distinguish the child of normal health and mind. Burr (67) discusses mental disorders that occur in childhood. Three types of abnormal children, the undetermined, the passive or inactive, and the feebly inhibited are described by Peters (374). Of 100 preschool children, all of whom tested at a normal or superior level, Mateer (325) discovered only eleven who were without some peculiar or special individual problem that needed readjustment. She found that throughout all ages, the most important factors that produce behavior and mental disorders in the normal child seem to be nutritional disturbances, chronic fatigue, specific infections, and true mental problems of an analytic nature. May (330) has devised two batteries of tests designed to measure certain forms of inhibition. Kenworthy (259) says the problem of the mental hygienist is to select for the child the different types of behavior and environment leading to integration. Glueck (170) states that the mental hygiene problem of any community is the problem of deliberately providing opportunities and means for more conscious and intelligent direction of the child's development. The first five years of the child's life are, according to Meagher (332), the most important from the point of view of mental hygiene. The importance of early emotional attitudes during early childhood are stressed by Kenworthy (258). The detection and correction of undesirable tendencies by individual personality studies by means of an outline is suggested by Wright (532). Griffith (192) lists some neurotic disorders of childhood. Olson (356) describes the development of a method for measuring nervous habits in children, and discusses the relation of nervous habits to certain etiological factors, and the use of differential tests in diagnosis. The work of mental hygiene clinics is described by Gesell (163), Richmond (404), Emery, Franz, Woods, and others (120), and Orgel (357). Merrill (338) reports mental differences in children referred to a psychological clinic. Goodenough (173) considers the diagnostic significance of children's wishes. The children were asked to name the three things they wished the most. No attempt at statistical evaluation of the responses to the question is made, but the results obtained appear to indicate that the question is often very useful in the analysis of the causative factors of behavior in individual cases. Wallon (485) has made an analytical study of children's questions. Blanchard (35)

has studied the subject matter and motivation of children's dreams. Slawson (430) shows that there is an intimate association between defective emotional make-up and delinquency. Goddard (171) gives a detailed account of a multiple personality case of a girl nineteen years old; the alternate personality was a boisterous four-year-old child. A group of problem and nonproblem children have been studied by Blanchard and Paynter (34). They found twice as many boys as girls and two and a half times as many mentally retarded in the problem group as in the nonproblem group.

Experiments on methods of eliminating children's fears are reported by Jones (246, 247, 248, 249), who concludes that any situation forcing a rapid unforeseen readjustment is likely to result in fear. The following methods were used for the elimination of the fear: (1) disuse, (2) verbal appeal, (3) negative adaptation, (4) repression, (5) direct conditioning, and (6) social imitation. Watson (494) gives a discussion of the conditioned response. Three types of enuresis are described by Pototsky (394). Woolley (527) discusses the psychological aspects and treatment of enuresis. Canavan and Clark (71) have studied the mental health of children from dementia praecox stock. Ebaugh (117) describes the neuropsychiatric aspects of chorea. Farrow (123), in psychanalytic studies, found two cases of memory of blows and taps received in infancy. Two cases of stuttering in which changing from left- to right-handedness was the cause are reported by Orton (358). Coriat (88) believes stammering implies an excessive oral-erotism in addition to the narcistic overvaluation of speech and thought function and a conflict about the use of obscene words. Heredity is given by Glassburg (169) as a predisposing factor and contributory causes are named, such as shock, nervous exhaustion, and psychic insult. Scripture (417) regards stuttering as a failure of coördination, but holds a feeling of inferiority responsible for the failure. Klein (267), Lehrman (285), Gribedov (191), and Lewis (294) discuss the use of modified psychanalytical technic with children.

The organization of habit clinics for preschool children is outlined by Thom (467). In a Children's Bureau publication, Thom (468) discusses the importance of habit formation in children and the relation of the parent to the child. Nouca (354) gives an account of reëducating an unstable child. The nervous child as a mental hygiene problem is the topic of Mackintosh's (316) article. Lima (295) discusses and analyzes speech defects in children. The

Joint Committee on Methods of Preventing Delinquency (240) reports three case studies of problem children.

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SPECIAL REVIEW

TRIGANT BURROW, *The Social Basis of Consciousness.* N. Y.: Harcourt, Brace, 1927. Pp. 251.

This volume is the outcome of a scientific investigation into the underlying, societal elements of consciousness. In it the author is concerned, not with the "awareness" of the psychological text-books, but with the affective, racial consciousness which is experienced commonly, not as a "theory of life" but as "life itself." For according to Dr. Burrow, true consciousness is possible only when there is integrity of function, individual and social—only when there is a healthy organism—a unified personality. From this viewpoint our present, individual consciousness is circumscribed and distorted because it has lost continuity with the common racial consciousness of which it is biologically an element. It is a social unconsciousness—a self-consciousness—which has resulted from a breach within the primal societal or unitary mode. There has arisen "a conflict between the part and the whole, wherein the individual is the embodiment of both." Thus in the social mind, as in any organism that is divided against itself, disease processes have taken the place of organic function and the self-seeking of the individual unit has appeared—an isolated and introverted expression of a social disharmony. It is Dr. Burrow's thesis that the disharmony within the individual can be understood only when it is studied as an expression of the social consciousness of which the individual is an integral part, and he shows how the original breach in our organic consciousness is recapitulated in the life of each individual. This occurs when the parent breaks into the original, primal mode and "as spokesman of a world of unconscious collusion in the defense of self," "demands conformity to *him* and *his* convenience." In this way the parent imposes a false code of secret self-interest which "operates to check spontaneous impulse."

The schism which results from this early and unconscious imposition becomes in time self-operative and finds constant social support in the alternatives of our collective social life—in war, art, science, education, religion, and marriage—even in the unconsciousness of the analyst who undertakes to correct the same condition as it appears

in the neurotic manifestations of his parents. Of this condition Dr. Burrow says: "I have come upon no phenomenon that has seemed to me of such basic significance as this illusory mechanism of unconscious dualism and conflict that underlies our absolute criteria of values, individual and social." Thus he finds that "normality, too, is neurotic"; that "normality, too, has its repressions and its substitutions, its secret symbols and equivocations," and he calls attention to the necessity for the practitioner to study the condition as it appears within himself and "to recognize that his own personalism is identical with the personalism of his patient," since "the insanity of the individual cannot be cured as long as there exists the insanity of the social mind about him." According to this author, the basis of neurotic disharmonies is to be found, not primarily in repressed sexuality (as Freud contends) but rather in a social distortion, of which sexuality—as a self-interested replacement for the biological unity of sex—is itself an expression.

Dr. Burrow's book is a study of the individual as a social element and it is therefore, at one and the same time, an analysis of the individual and of our so-called "normal" social world. In this, as in any analysis, the most important feature is its constructive possibility. Thus one feels, throughout the book, the author's recognition of the biological need which underlies the obsessive self-seeking and other neurotic social conditions of the day. Though this need has been denied its natural expression and has been forced into the substitutive channels of private autocracy, the author feels that there can be seen in these neurotic manifestations the urge toward the essential, organic, and unified mode of social consciousness.

The book is rich in subject matter and varied in treatment. It can be read again and again, and each reading yields a richer understanding of the far-reaching implications of the author's thesis. To the reviewer, the primary significance of the book lies in the fact that it comes as the expression of a scientific social investigation into social processes—as the result of "a group undertaking to obtain affective conditions shared in common that might afford a basis for the observation of affective conditions withheld separately." It thus presents a basis for laboratory investigation in a field whose problems are both manifold and imminent.

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NOTES AND NEWS

THE Board of National Research Fellowships in the Biological Sciences, in meeting on May 25 and 26, awarded fellowships to the following individuals for psychology: Reappointment, Theodore F. Karwoski; New Appointments, Joseph A. Gengerelli, Attilio Rizzolo, Morgan Upton and L. H. Warner.

DR. JOSEPHINE JOTEYKO, formerly of the University of Brussels and more recently of the University of Warsaw, died on April 24, 1928, at Warsaw.

DR. JOHANNES LINDWORSKY, professor of psychology at the University at Cologne, has been called to the University of Prague.

PROFESSOR LOUIS B. HOISINGTON of Cornell University has been appointed professor of psychology and head of the department of psychology at the University of Oklahoma.

THE sessions of the Linguistic Society of America will be held on December 26, afternoon and evening, and December 27, morning, at the Columbia School of Mines, Broadway above 116th Street, New York City. Members of the American Psychological Association will be heartily welcome. Programs may be secured in advance on application to Professor Roland G. Kent, Secretary of the Linguistic Society, University of Pennsylvania, Philadelphia, Pa.

THE University of Arkansas, at Fayetteville, has received an appropriation for extensive enlargement of equipment and space of the psychological laboratory. This department now occupies a suite of 11 rooms on the second floor of the old Engineering Building. The library facilities have also been increased. New appointments include Professor John A. McGeoch, who has been made director of the laboratory; Dr. R. H. Waters as associate professor of psychology, and Dr. Cecil DeBoer, Instructor in Philosophy and Psychology.